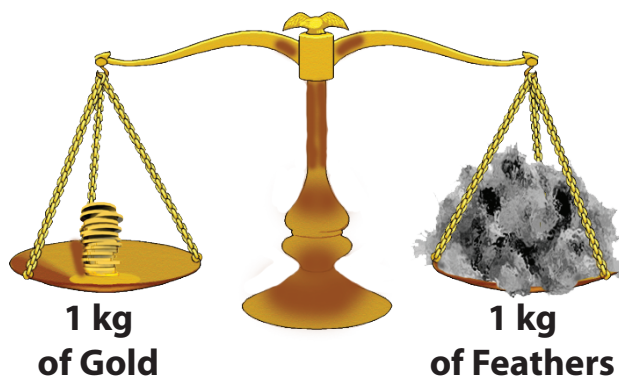


Name: _____

Period: _____ Table: _____

What Weighs more...

What has more Volume...



Why do they have the same mass but vastly different volume? **Density...**
Webster's Definition of "density" – something that is dense...

Why is something more dense than another?

The particles that make up the denser object are packed closer together than that of the less dense object.

The gold particles (atoms) are much more densely packed than the feather particles (molecules).

How is density measured? Density is the ratio of the mass of an object to its volume or

density = mass / volume

$$d = \frac{m}{V}$$

For solids, density is measured in g/cm³

For liquids and gases, density is measured in g/mL

Note: 1 cm³ = 1 mL

To float on water, an object must have a density **less than** the density of water (1 g/mL).

1. The water in a 710 mL bottle of Aquafina has a mass of 710 grams. When the water is frozen it has a volume of 772 mL. What is the density of frozen water (ice)?

ICE:

$$m = 710 \text{ g} \quad V = 772 \text{ mL}$$

$$d = \frac{m}{V} = \frac{710 \text{ g}}{772 \text{ mL}} = 0.92 \text{ g/mL}$$

2. A Silver Eagle coin is composed of an alloy of 90% silver and 10% copper. The density of the alloy is 10.33 g/cm^3 . If the coin's mass is 31.1 grams, what is the coin's volume?

3. At room temperature, Air has a density of $1.25 \times 10^{-3} \text{ g/mL}$ and Carbon Dioxide has a density of $1.83 \times 10^{-3} \text{ g/mL}$. What is the mass of each gas if it were placed in a 2-Liter bottle? A 2-Liter bottle is 2,000 mL.